

WOLFER PROVISIONAL SUN-SPOT RELATIVE NUMBERS.*

The provisional relative sun-spot numbers given in Table I herewith are in continuation of the observed relative and the smoothed relative sun-spot numbers published in the REVIEW for July, 1915, 43: 314.

While these provisional numbers are subject to slight revision, and later will be smoothed by the method described in the REVIEW for April, 1902, 30: 171, they are sufficiently accurate to show that at the crest of the maximum of 1917 the relative sun-spot number was in excess of 100, which is unusually high.—H. H. K.

TABLE 1.—*Wolfer provisional sun-spot relative numbers, January 1915–December, 1918.*

	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Mean.
1915 ¹	25.7	35.0	34.9	42.2	35.0	60.9	71.0	68.6	44.7	53.5	38.2	32.7	46.0
1916 ²	44.3	55.4	66.5	73.3	71.4	87.7	53.0	34.1	41.4	56.0	60.7	41.0	55.4
1917 ³	76.2	71.8	86.6	63.7	112.7	113.8	117.0	142.2	121.9	71.4	90.1	116.8	98.8
1918 ⁴	96.3	63.4	72.2	76.5	76.5	61.8	104.6	94.1	73.5	86.1	68.0	54.8	77.9

¹ Met. Zeit, 1915, 32: 188, 364, 508, and 1916, 33: 42.

² Terr. Mag. Sept., 1918, 23: 136, 24: 43, and others.

* Replacing data in this REVIEW, September and December, 1918, 46: pp. 462 and 574.

Sun-spot numbers are determined by a somewhat arbitrary rule, but they are approximately proportioned to the spotted area of the sun. One hundred as a sun-spot number corresponds to about one five-hundredth of the sun's visible disk covered by spots.—*Met. Off. Circ.*, 33, Apr. 25, 1918.

In reporting on the sun spots observed in the year 1918 Mr. Evershed, director of the Solar Physics Observatory, Kodaikanal, remarks that the maximum spot activity of the present cycle took place during the second half of 1917 for both hemispheres. This judgment may be accepted as correct, for though some hesitation has been felt in accepting this early date lest a secondary maximum should occur after a temporary decline, as has happened in previous cycles, these circum-

stances do not seem likely to occur. The date of the previous maximum has been placed in the early part of the year 1906, though the sun-spot activity of that year was inferior to that of 1905 and of 1907. Adopting these estimates as correct, the length of the period just ended is slightly above the average.—*Nature (London)*, June 12, 1919, p. 291.

THE WEATHER DATA NEEDED BY ECLIPSE EXPEDITIONS.

In spite of the fact that some of the observing stations for the total eclipse of May 29, 1919, were in the equatorial rain belt, satisfactory results have been obtained.

"In connection with the coming solar eclipse of September 10, 1925, the path of totality of which crosses Mexico, Prof. W. W. Campbell renews a suggestion which has been made by Prof. Todd and other astronomers, viz, that weather observations should be made along the prospective shadow path for a few years before a total eclipse, not only at the season of the year in which the eclipse is to occur, but also at the hour of the eclipse. The observations made at the regular term-hours at meteorological stations often give an entirely erroneous idea of the kind of weather likely to be encountered at the time of an eclipse. Prof. Campbell says that the data supplied to prospective observers of the Russian eclipse of August 21, 1914, were based on observations made in the morning and evening, and gave fair promise of clear skies for the event. After the eclipse parties reached Russia they were surprised to discover that while clear weather was the rule in the evenings and mornings and at night, cloudiness generally prevailed in the middle of the day, reaching its maximum at about the eclipse hour. The Lick Observatory would not have sent an eclipse expedition to Russia if this condition had been known. * * *

—*Sci. Amer.*, New York, June 21, 1919, vol. cxx, p. 649.

LAND AND SEA BREEZES IN THE VICINITY OF CORPUS CHRISTI BAY, TEX.*

By C. E. HECKATHORN, Observer.

[Dated: Weather Bureau, Corpus Christi, Tex., May 17, 1919.]

SYNOPSIS.

Corpus Christi Bay is almost a land-locked body of water, 20 miles wide from east to west and 16 miles from north to south and 14 feet deep. The result of these physical factors is that Corpus Christi Bay is considerably warmer than the Gulf of Mexico, and, at night, very much warmer than the adjacent land areas. It is situated south of the paths of highs and lows so that its temperature and winds are little affected thereby. With such striking differences in land, bay, and sea temperatures it follows that the land and sea breezes present an interesting study.—H. L.

Corpus Christi Bay is an almost land-locked body of water about 20 miles in length east and west by about 16 miles in width north and south and is far enough south (north latitude 27° 40' to 27° 56') so that the winds and temperatures of the vicinity are not dominated by areas of high and low pressure that cross the United States during the summer season (see fig. 1). It is separated from the Gulf of Mexico by Mustang Island, which is quite narrow and is one of the chain of narrow islands paralleling the Texas Coast. The bay has only two connections with the Gulf of Mexico, Corpus Christi Pass at the south and Aransas Pass at the north end of Mustang Island. Both passes are quite narrow and Corpus Christi Pass is shallow, having a depth of less than 3 feet; allowing only a very limited mixing of the water in the bay with the water in the gulf. Extending south-

ward from the east end of the bay is a long narrow body of water, Laguna Madre, which has no other connection with the Gulf of Mexico except at its southern extremity, over one hundred miles south of Corpus Christi Bay. Laguna Madre is shallow, being less than 1 foot in depth in most places and only a few feet in depth in the deepest places. Extending northeastward from the northeastern extremity of Corpus Christi Bay is Shoal Bay; a body of water similar to Laguna Madre. The Nueces River enters the western extremity of Corpus Christi Bay through Nueces Bay, which is also shallow; permitting the water of the river to be affected by radiation so much before entering Corpus Christi Bay that it is near the temperature of the surrounding land when it enters Corpus Christi Bay. Corpus Christi Bay has an average depth of about 14 feet and is quite uniform in depth except near the shores.

In the summer season, owing to almost uninterrupted insolation, almost complete separation from the Gulf of Mexico, and the relatively high temperature of most of the water entering it, the water of Corpus Christi Bay becomes much warmer than the water in the Gulf of

* For other recent discussions of sea breezes locally on the coast of the United States see "Sea breeze on eastern Long Island," by E. S. Clowes, *Monthly Weather Review*, 1917, 45: 345-346; and in "Certain characteristics of the winds at Mount Tamalpais, Calif.," by H. H. Wright, *ibid.*, 1916, 44: 514.—Editor.